APPENDIX B

Web Accessibility Standards

B-1. A text equivalent for every non-text element shall be provided via "alt," "longdesc," or in element content. When writing ALT tags, keep in mind that you are giving the unsighted the same experience in text form that you are giving the sighted in visual form. ALT tags should describe the images, animations or other elements. Include colors and description that express feeling. Also include descriptions of links, when appropriate.

Examples:

- **Use Complete Descriptions:** ALT="Photo of a young man fishing in a red boat floating on a calm lake." is better than ALT="Photo of a man fishing on the lake."
- **Animations:** Describe the sequence of events. ALT="Animation of a mailman walking from left to right across the screen." is better than ALT="Animation of mailman."
- **Links:** If the image is linked, describe the destination or purpose of the link. ALT="USACE Home Page" is better than ALT="Blue button." Most of the assistive technology will let the reader know it is a link.
- **Complex Images:** When using a complex image such as a graph or chart, link to a longer description of the image. You can add the longdesc="" tag to link to another page for future browser versions or add a link either from the image or beside the image. Here are three possible solutions:
- <A HREF="graphdesc.htm"><IMG SRC="graph.gif" ALT="Graph of Number of ships through the lock"></A> where the graphdesc.htm gives a detailed description.
- <IMG SRC="graph.gif" ALT="Graph of Number of ships through the lock"><A HREF="graphdesc.htm">d or in place of the d, add link text like "Link to a description of the Graph"
- <IMG SRC="graph.gif" ALT="Graph of Number of ships through the lock" LONGDESC="graphdesc.htm">
- **Unseen Images:** If the image is one that the sighted won't see (e.g., blank image used for spacing), use the format ALT="" with a space between the double quotes.
- **Image Containing Text:** If the image contains text, describe the image and give the text. ALT="company logo, a stylized red castle with the following text below: U.S. Army Corps of Engineers."
- **Longdesc:** If you need more room to describe the image than is practical in the ALT tag, use the LONGDESC tag. For the LONGDESC tag, use the following format: ALT="3-D sales chart" LONGDESC="graph.html" The file graph.html is a separate page with a longer description. This option may not be currently supported by your browser; however, it is advised that you add the text now to save you time later. You can also use a D-link until it is supported by all browsers. A D-link is simply the letter D linked to alternate content or to a

place in the document past repetitive links. For the D-link use the following format: <A HREF="graph.html"><img src="graph.gif" ALT="3-D sales chart" LONGDESC="graph.html">d</A> You can also create a link to the "Description of the Graph" above or below the graph.

- **Server Side Image Maps:** When using server side image maps alone, add redundant links below the image:
  <A HREF="img/imgmapsenses.map">
  <IMGISMAP SRC="imgmapsenses.gif" ALT="Use the links below the image instead of the imagemap."></A>
  Remember to add the redundant links below the image.

- **Client side image maps:** When using server side image maps, include an ALT tag in each area <AREA SHAPE="CIRCLE" HREF="Utah.html" ALT="Utah" COORDS="65,57,11"> etc.

- **Object Elements:** When using the object element to place an image, include a text alternative. <OBJECT data="home.gif" type="image/gif">Description of the object</OBJECT>

- **Images used as bullets:** Use something similar to the following as an Alt tag for images used as bullets.
  <img src="bluebullet" alt="* ">
  <img src="bluebullet" alt="Item: ">
  <img src="bluebullet" alt=" ">

- **Applets, programming objects:** <APPLET code="Welcome.class" width=200 height="25" alt=Java applet: welcome message">If you were using a Java-enabled browser, you would see the message "Welcome to the xxxx home page" flying in from left to right, instead of this paragraph.</APPLET>

- **Other Elements:** ASCII art - avoid ASCII art as it is difficult for those with assistive technology to understand. If you must use ASCII art, describe it first and offer a link to bypass the art as outlined in the following example. The following ASCII art is a picture of a bearded person wearing a hat. (Skip over ASCII art)

```
      XXXXXXXXX
    XXXX      XXXX
    **********
     | \o/ \o/ |
     |   |   |
      \      /
       \ --- /
        vvvvv
         vvv
```

Skip to here

B-2. Equivalent alternatives for any multimedia presentation shall be synchronized with the presentation.

- **Sounds:** If you have created a program where a sound signifies a certain event, also create a message that displays on the screen that mirrors the sound.

- **Stand-Alone Audio Files:** When using a short audio file, use the "ALT" tag to describe the audio. <A HREF="welcome.wav"><IMG SRC="img/welcome-audio.gif" ALT="Sound file: Welcome to our home page"></A> However, if the sound file contains a long passage of text, a link to a transcript of the file would be more appropriate. <A HREF="welcome.wav"><IMG SRC="img/welcome-audio.gif" ALT="Sound file: Welcome to our home page">Read the transcript of this sound file.</A>

- **Audio track of Video or Described Video:** Always link to a transcript of the audio track, or, if possible use closed captions. The video should include descriptions of action where appropriate, similar to the text of a screenplay.

B-3. Web pages shall be designed so that all information required for navigation or meaning is not dependent on the ability to identify specific colors. Many users are color blind. Consider what your images or colored text would look like if they were in grey tones. The following were converted from color to grey tones. You see that the orange and green (the two on the right) appear to be about the same color when converted.

- **Colors as Indicators:** Do not use red, green, or yellow indicators without also providing some other indicator, perhaps a R, G, Y within the image. If you do use some color differentiation, try to use as much contrast as possible.

- **Background/Foreground Colors:** Use contrasting background and foreground colors. This is not directly addressed in the 16 rules (See par 6a-6p), but consider what one would see if the pages were viewed without color.

B-4. Documents shall be organized so they are readable without requiring an associated style sheet.

With style sheets, it is possible to change sequencing of text. There may be reasons to do so but it will not be accessible to those who don't have style sheet capability:
<DIV class=part4> the lazy dog</DIV>
<DIV class=part2> brown fox</DIV>
<DIV class=part1> The quick</DIV>
<DIV class=part3> jumped over</DIV>
Without the style sheet this would show:
the lazy dog. brown fox The quick jumped over
This will make it very difficult for those using assistive technology.
In the above example, arrange the words in the correct order so that without the style sheet, the

text will read properly.
<DIV class=part1> The quick</DIV>
<DIV class=part2> brown fox</DIV>
<DIV class=part3> jumped over</DIV>
<DIV class=part4> the lazy dog.</DIV>

B-5. Redundant text links shall be provided for each active region of a server-side image map.

It is recommended that you use client-side image maps. However, when using only server-side image maps, there should be redundant links on your page for each active region. You cannot use ALT tags within a server-side image map. You should use the format:
<A HREF="img/imgmapsenses.map"><IMGISMAP SRC="imgmapsenses.gif" ALT="Use the links below the image instead of the imagemap."></A>
Add the redundant links below the image.

B-6. Client-side image maps shall be used whenever possible in place of server-side image map.

<IMG ISMAP BORDER="0" ALIGN="Middle" SRC="images/statemap.gif" ALT="Map of States - Click on an area of the country for the state home page." USEMAP="#statemap" WIDTH="663" HEIGHT="447"></A>

<MAP NAME="statemap">
<AREA SHAPE="POLYGON" HREF="Utah.html" ALT="Link to Utah"
COORDS="65,57,59,309,11">
<AREA SHAPE="RECT" HREF="idaho.html" ALT="Link to idaho"
COORDS="12,65,57,72">
etc.
</MAP>

Remember to use <ALT> tags within each AREA.

Using <OBJECT> element: Another method of creating a client side image map is to use the OBJECT tag. (This may not be supported by all browsers yet.)

<OBJECT data="imagemap.gif" type="image/gif" usemap="#map">
<MAP name="map">Navigate this site<p>
<A HREF="a.htm" shape="rect"
coords="0,0,29,29">(Section A)</A>
<A HREF="b.htm" shape="rect"
coords="1,30,29,49">(Section B)</A>
<A HREF=" c.htm" shape="rect"
coords="1,50,29,59">(Section C)</A>
</MAP>
</OBJECT>

B-7. Data tables shall provide identification of row and column headers.

Using tables for layout: If using tables for the layout of your document, do not use tags like <TH><HEADER><COLGROUP> etc.

Tabular data is best presented in data tables. Users of assistive technology will find it easier to understand the structure in this format than other alternatives, such as using the <PRE> tag or Cascading Style Sheets.
However, identify the column and row headers using <TH>. When the assistive technology reads the following table, it would read something like (Name: John Smith, State: Idaho, Telephone: 321-987-6543 etc.).

Name	State	Telephone	E-mail
John Smith	Idaho	321-987-6543	johnsmith@haymo.com

This is especially important when you have multiple rows and columns.

B-8. Markup shall be used to associate data cells and header cells for data tables that have two or more logical levels of row or column headers. You can see the kinds of problems that can occur with the following type table. How will assistive technology read Jane Doe's record?

Name	City	Telephone	E-mail
United States			
John Smith	Boise	321-987-6543	johnsmith@haymo.com
Canada			
Jane Doe	Montreal	609-987-6543	janedoe@emzi.com

Another example

TRAVEL EXPENSES (actual cost, US$)

TRIP, date	Meals	Room	Trans.	Total
San Jose				
25 Aug 97	37.74	112.00	45.00	
26 Aug 97	27.28	112.00	45.00	
Subtotal	65.02	224.00	90.00	379.02
Seattle				
27 Aug 97	96.25	109.00	36.00	
28 Aug 97	35.00	109.00	36.00	
Subtotal	131.25	218.00	72.00	421.25
Totals	196.27	442.00	162.00	800.27

Html 4.0 includes more tags to define table data (TBODY, THEAD, SCOPE, HEADERS). This will allow for more accurate labeling or column and row headers. The following is the markup for the table above:

<TABLE BORDER="1" CELLPADDING=2 CELLSPACING=3>
<CAPTION>TRAVEL EXPENSES (actual cost, US$)</CAPTION>

```
<THEAD>
<TR>
<TH><P><SPAN ID="trip">TRIP</SPAN>,<BR>
<SPAN ID="date"> date</SPAN></P></TH>
<TH SCOPE="column">Meals</TH>
<TH SCOPE="column">Room</TH>
<TH SCOPE="column"><ABBR="Transportation">Trans.</ABBR></TH>
<TH SCOPE="column">Total</TH>
</TR>
</THEAD>

<TBODY>
<TR>
<TH SCOPE="rowgroup" HEADERS="trip">San Jose</TH>
</TR>

<TR>
<TD SCOPE="row" HEADERS="date"> 25 Aug 97</TD>
<TD>37.74</TD>
<TD>112.00</TD>
<TD>45.00</TD>
</TR>

<TR>
<TD SCOPE="row" HEADERS="date"> 26 Aug 97</TD>
<TD>27.28</TD>
<TD>112.00</TD>
<TD>45.00</TD>
</TR>

<TR>
<TD SCOPE="row">Subtotal</TD>
<TD>65.02</TD>
<TD>224.00</TD>
<TD>90.00</TD>
<TD>379.02</TD>
</TR>
</TBODY>

<TBODY>
<TR>
<TH SCOPE="rowgroup" HEADERS="trip">Seattle</TH>
</TR>

<TR>
```

<TD **SCOPE="row" HEADERS="date"**> 27 Aug 97</TD>

<TD>96.25</TD>
<TD>109.00</TD>
<TD>36.00</TD>
</TR>

<TR>
<TD **SCOPE="row" HEADERS="date"**> 28 Aug 97</TD>
<TD>35.00</TD>
<TD>109.00</TD>
<TD>36.00</TD>
</TR>

<TR>
<TD **SCOPE="row"**>Subtotal</TD>
<TD>131.25</TD>
<TD>218.00</TD>
<TD>72.00</TD>
<TD>421.25</TD>
</TR>
</TBODY>

<TBODY>
<TR>
<TH **SCOPE="row"**>Totals</TH>
<TD>196.27</TD>
<TD>442.00</TD>
<TD>162.00</TD>
<TD>800.27</TD>
</TR>
</TBODY>
</TABLE>

B-9. Frames shall be titled with text that facilitates frame identification and navigation. (Frames are NOT permitted on Corps websites without prior Website Manager approval, see paragraph 5.d.4.q). Use the title to briefly describe the purpose of the frame, e.g., <FRAME src="main.htm" title="Main content frame."> You can use the longdesc (future) or D link to link to a longer description of the frameset. Pagemasters will use an html document as the frame source rather than an image.

B-10. Pages shall be designed to avoid causing the screen to flicker with a frequency greater than two Hz and lower than 55 Hz.

People with photosensitive epilepsy can have seizures triggered by flickering or flashing in the four to 59 flashes per second (Hertz) range with a peak sensitivity at 20 flashes per second as well as quick changes from dark to light (like strobe lights).

Do not use the BLINK and MARQUEE elements. These elements are not part of any W3C specification for html (i.e., they are non-standard elements and are not permitted on Corps web pages).

B-11. A text-only page, with equivalent information or functionality, shall be provided to make a website comply with the provisions of this part of the Rehabilitation Act, Section 508, when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes.

Because of the difficulty in keeping alternative pages up-to-date with the full content of the original page, alternative pages should be provided only after you have tried all of the other pertinent techniques outlined in the Web Content Accessibility Guidelines to make the original page accessible (unless the alternative page is automatically generated from the same source as the original page).

Here are two ways you might give visitors the choice:

<FONT COLOR="#FFFFFF">d</FONT>

Welcome to the Organization's Web Site!

Follow this link if you want the <A HREF="path1/">dazzling but confusing site,</A>, or follow this link if you want the <A HREF="path2/">accessible version</A>.

When the user chooses a link, the appropriate page will be displayed.

Please remember that this option of a text only page should be used as a last resort. As more browsers support the latest versions of HTML, XML, CSS, 1 and 2 and other accessible W3C languages, pages that cannot be made accessible by following the other guidelines will become rarer.

B-12. When pages utilize scripting languages to display content or to create interface elements, the information provided by the script shall be identified with functional text that can be read by assistive technology.

When the user **doesn't support scripts or plug-ins,** they must have an alternative.

- With "onkeydown" avoid using javascripts as the source of a hyperlink.
- Avoid client-side scripting. Instead use server-side scripting which pushes html to the browser.
- When the user **does support scripts**, they must be as accessible as possible.
- USE <NOSCRIPT> tags to describe or replace the functionality of the script.
- Use application level event triggers rather than user interaction-level triggers such as "onfocus," "onblur," and "onselect."

- Use logical rather than device-dependent events. If you must use device dependent events, then also include other methods for execution.
- Use "onmousedown"
- Use "onmouseup" with "onkeyup"
- Use "onclick" with "onkeypress"

When the **page serves a programmed application**, the application must be accessible.

B-13. When a web page requires that an applet, plug-in or other application be present on the client system to interpret page content, the page must provide a link to a plug-in or applet that complies with §1194.21(a) through (l).

If an applet (created with either OBJECT or APPLET) requires user interaction (e.g., the ability to manipulate a physics experiment) that cannot be duplicated in an alternative format, make the applet directly accessible.

The accessibility of objects with their own interface is independent of the accessibility of the user agent. Accessibility must be built into the objects or an alternative must be provided. If you are a programmer, be aware of the resources available to help you ensure your programs are accessible.

B-14. When electronic forms are designed to be completed on-line, the form shall allow people using assistive technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues.

Consider the tab order when developing forms. What is the logical progression of fields? Can they all be filled in with assistive technology?

You can also use a statement at the top of the form like ***Skip the form to find accessible alternatives***. Link to information like a telephone number to call or how to get the information desired.

Html 4.0 makes it possible to **"keyboard enable"** anchors and form controls (e.g. <A HREF="form-alt.htm" ACCESSKEY=a>Skip the form to find <U><B>A</B></U>accessible alternatives</A> This is not supported by all browsers.

For all form controls with labels ensure that:

The label is immediately following its control on the same line (allowing more than one control/label per line).

OR

The label is on the line before the control (with only one label and one control per line).

Until user agents handle empty controls correctly, include default, place-holding characters in edit boxes and text areas. Some older browsers do not let a keyboard user "TAB" into an entry field. An asterisk in the Name field and some default text in the TEXTAREA, allows the user to

search for the placeholding text and thus provide a means of getting the insertion cursor into the field.

Your name<INPUT TYPE="TEXT" NAME="Name" SIZE="50" VALUE="* ">
Feedback
<TEXTAREA NAME="TextArea1" ROWS="4" COLS="50">
Please enter your comments here:</TEXTAREA>
<INPUT TYPE="submit" VALUE="Submit this form.">

B-15. An appropriate method shall be used to facilitate the easy tracking of page content that provides users of assistive technology the option to skip repetitive navigation links.

Assistive technology for users reads from the top of the page and reads all the text and links in order. Many users use the tab feature to skim through the page, reading just the links. This means that even if users just tab through the links, they still have to hear the same links each time they go to a new page. The W3C suggest using the D-link to give users the option to skip repetitive links. A D-link is simply the letter D linked to alternate content or to a place in the document past repetitive links. Here are a couple of methods you can use:

- **Hidden D-link:** <SPAN id=hidden>d</SPAN>
- **Visible D-link:** With this option, you can color the link the same as the background color <FONT COLOR="#FFFFFF">d</FONT>

Frames: The frame source should always be an html file, not an image. When the source is not an html file, you cannot provide a text equivalent for the image. The problem with this is if the dynamic content changes. In the initial frame, you would be able to describe the image in the title. However, if the content changes, the title would still describe the first image.

You can also use the NOFRAMES tag to give alternate content at the end of the FRAMESET.

REMINDER: The use of frames on a Corps website is permitted only with approval of the Website Manager.

Scripts: Use the <NOSCRIPT> tag to add content where browsers have script capabilities turned off. Here is an example:

<SCRIPT type="text/tcl">
...some Tcl script to show a billboard of sports scores...
</SCRIPT>

<NOSCRIPT>
<P>Results from yesterday's games:</P>
<DL>
<DT>Bulls 91, Sonics 80.
<DD><A href="bullsonic.html">Bulls vs. Sonics game highlights</A>
...more scores...

```
</DL>
</NOSCRIPT>
```

or

```
<OBJECT classid="java:Press.class" width="500" height="500">
As temperature increases, the molecules in the balloon...
</OBJECT>
```

B-16. When a timed response is required, the user shall be alerted and given sufficient time to indicate more time is required.

If your page is being continually updated, inform the user that they should reload the page often (rather than by doing it for them).

For example, html does not cause pages to **auto-refresh** with "HTTP-EQUIV=refresh" until user agents allow users to turn off the feature. The following code would cause the same page to "refresh" or reload itself every 60 seconds. Presumably, you would do this because you are changing the content of that page frequently.

```
<META http-equiv="refresh" content="60">
<BODY>
<P>...Information...
</BODY>
```

Until user agents provide the ability to stop auto-redirect, do not use markup to **redirect pages** automatically. Instead, configure the server to perform redirects.